Information Bulletin

Failure to Peer Check Calculations Results in Positive Unreviewed Safety Question

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Summary: Management must recognize calculation and assumption basis errors can and do occur when developing the Documented Safety Analysis (DSA), and must provide for appropriate safeguards to provide an advanced level of peer check review in those instances. It is not adequate to simply state that such reviews will be done; a stronger set of checks and balances system must be institutionalized.

Discussion of Activities: As part of the planning for the final disposition of a tank in a facility, Deactivation and Decommissioning (D&D) Nuclear Safety discovered a discrepancy in the accident analysis of the plant DSA. A USQ evaluation was completed on April 25, 2006 and determined a USQ existed. The discrepancy was caused by an inadequately previously performed revision to the DSA. That revision was a result of an engineering review which discovered Plutonium (Pu) within a tank located in the facility. That discovery changed the hazard category classification for the facility from a Nuclear Hazard Category 3 to Hazard Category 2 facility. As a result, an action was assigned to update the DSA.

The update was performed by a Nuclear Safety Engineer (NSE). The NSE performed calculations for potential releases and modeled them using a non-conservative solubility class in the release calculations. Upon completion of the revisions to the DSA, the NSE did not formally request a formal peer review from an independent NSE, but used an informal review instead. Procedures require a formal peer review and an additional review by personnel who were not directly involved in performing the work and who have equivalent technical expertise.

Analysis: During the informal peer review the incorrect solubility class was not recognized because the modeling changes in the revision to the DSA did result in an increase in dose consequences, therefore, the error was not obvious. A Functional Independent Review was performed for the DSA revision and the supporting calculations by a multi-discipline team were conducted. This was a missed opportunity to identify the lack of a required Review Checklist/formal peer review. The Safety Review Board should have identified the incorrect solubility class, the lack of a Review Checklist in the file, and the lack of an “independent” peer review. It was determined the facility procedure lacked the rigor, structure, and did not reference the specific citations outlined in higher tier procedures to ensure all aspects of the review are performed.

Recommended Actions: Personnel must know the proper protocol to follow (training/mentoring) and procedures must drive the process appropriately.

Cost Savings/Avoidance: Not Evaluated

Work Function: Decontamination and Decommissioning; Nuclear Safety

Hazards: Other

ISM Core Functions: Develop/Implement Controls

Keywords: Documented Safety Analysis (DSA); Solubility Class; Peer Review

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References: EM-RL-PHMC-CENTPLAT-2006-0002